

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
05.03.2008 Bulletin 2008/10

(51) Int Cl.: **A61B 8/00** (2006.01) **A61B 8/12** (2006.01)
G01S 7/52 (2006.01) **A61B 8/06** (2006.01)

(43) Date of publication A2:
19.12.2007 Bulletin 2007/51

(21) Application number: **07011568.8**

(22) Date of filing: **13.06.2007**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
 HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE
 SI SK TR**
 Designated Extension States:
AL BA HR MK YU

(72) Inventor: **Misono, Kazuhiro**
Tokyo, 151-0072 (JP)

(74) Representative: **von Hellfeld, Axel**
Wuesthoff & Wuesthoff
Patent- und Rechtsanwälte
Schweigerstrasse 2
81541 München (DE)

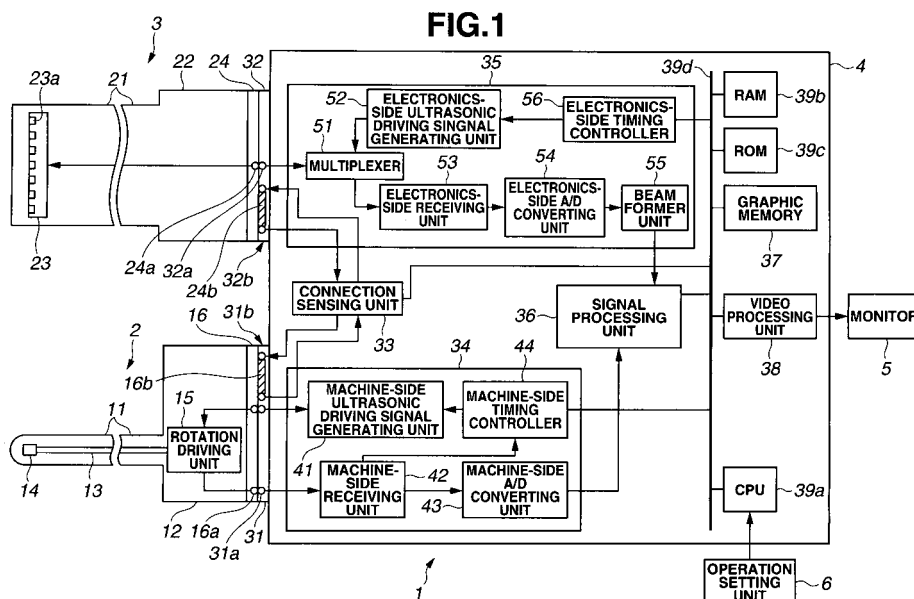
(30) Priority: **14.06.2006 JP 2006165215**

(71) Applicant: **OLYMPUS MEDICAL SYSTEMS CORP.**
Shibuya-ku
Tokyo 151-0072 (JP)

(54) **Ultrasonic observing apparatus, control method for ultrasonic observing apparatus, ultrasonic observing system and ultrasonic diagnostic apparatus**

(57) An ultrasonic observing apparatus according to the present invention comprises a machine-side connector receptacle, an electronics-side connector receptacle, a mechanical echo signal detecting unit for detecting an echo signal obtained by receiving waves in a mechanical scanning ultrasonic probe connecting to the machine-side connector receptacle, an electronic echo signal de-

detecting unit for detecting an echo signal obtained by receiving waves in an electronic scanning ultrasonic endoscope connecting to the electronics-side connector receptacle, and a signal processing unit for performing signal processing on the echo signal from the mechanical echo signal detecting unit and the echo signal from the electronic echo signal detecting unit.





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 01 1568

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 10 033533 A (OLYMPUS OPTICAL CO) 10 February 1998 (1998-02-10) * abstract *	1,11,14	INV. A61B8/00 A61B8/12 G01S7/52
A	* paragraph [0012] - paragraph [0030] * * figures 1,5 *	2,3,12, 13,15,16	ADD. A61B8/06
X	----- US 5 295 485 A (SHINOMURA RYUICHI [JP] ET AL) 22 March 1994 (1994-03-22) * abstract *	1,11,14	
A	* column 5, line 15 - column 14, line 3 * * figures 1-5,8A-B *	2,3,12, 13,15,16	
X	----- JP 10 290799 A (OLYMPUS OPTICAL CO) 4 November 1998 (1998-11-04) * abstract *	1,11,14	
	* paragraph [0023] - paragraph [0032] * * figure 1 *		
P,X	----- JP 2007 037844 A (OLYMPUS MEDICAL SYSTEMS CORP) 15 February 2007 (2007-02-15) * abstract *	1,11,14	TECHNICAL FIELDS SEARCHED (IPC) A61B G01S
	* paragraph [0008] - paragraph [0031] * * figures 1,2,4,5 *		

The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 26 September 2007	Examiner ARTIKIS, T
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

2
EPO FORM 1503 03.82 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
- 1-16
- ☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-16

An ultrasonic observing apparatus comprising first connecting means for detachably connecting first mechanical scanning ultrasonic means, second connecting means for detachably connecting second electronic scanning ultrasonic means, scanning identifying means, and means for processing an echo signal of the first or second ultrasonic means based on an identification result by the scanning identifying means. The corresponding method for controlling the ultrasonic observing apparatus is also claimed.

2. claims: 17-19

An ultrasonic observing apparatus comprising a first connecting unit for detachably connecting a mechanical scanning ultrasonic probe or endoscope, a second connecting unit for detachably connecting an electronic scanning ultrasonic probe or endoscope, a mechanical transducer echo signal detecting unit for transmitting and receiving pulses to a transducer in the mechanical scanning ultrasonic probe or endoscope, an electronic transducer echo signal detecting unit for transmitting and receiving pulses to a transducer in the electronic scanning ultrasonic probe or endoscope, and means for processing an echo signal from both said detecting units.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 01 1568

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

26-09-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 10033533	A	10-02-1998	NONE	

US 5295485	A	22-03-1994	DE 4241712 A1	17-06-1993
			JP 5161641 A	29-06-1993

JP 10290799	A	04-11-1998	JP 3691629 B2	07-09-2005

JP 2007037844	A	15-02-2007	NONE	
